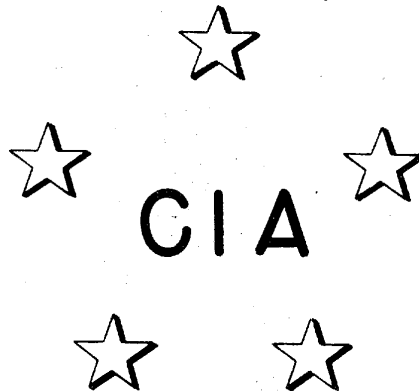


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## Foreign Documents Branch C I A Periodical Abstracts

30 Jun 1948

SCIENTIFIC

Number 50

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Abstracted in this issue:

<u>Title</u>	<u>Issue</u>	<u>Date</u>
<u>Russian Periodicals</u>		
"Avtomatika i Telemekhanika" (Automatics and Telemechanics) Cards 1, 25-29, 55	Vol VIII No 6	Nov/Dec 1947
"Comptes Rendus (Doklady) de l'Academie des Sciences de l'URSS, Nouvelle Serie" (Reports of the Academy of Sciences of the USSR, New Series)* Cards 2, 39, 48, 63, 74, 98	Vol IV No 5	Feb 1947
"Elektricheskiye Stantsii" (Electrical Stations) Cards 4-17	No 12	Dec 1947
"Energeticheskiy Byulleten'" (Energetics Bulletin) Cards 18, 23, 85-88	No 12	Dec 1947
"Fel'dsher i Akusherka" (Medical Assistant and Midwife) Cards 64-68	No 12	Dec 1947
"Izvestiya Akademii Nauk SSSR, Seriya Geograficheskaya i Geofizicheskaya" (News of the Academy of Sciences of the USSR, Geography and Geophysics Series)* Cards 38, 40-47, 69-73, 84, 99	Vol XI No 1 No 2	Jan 1947 Mar 1947
"Sbornik Rukovodnyashchikh Materialov i Konsol'tatsiy po Stroitel'stvu" (Symposium of Guidance Materials and Conferences on Construction) Card 24	No 1	Jan 1948
"Trudy Instituta Okeanologii" (Works of the Oceanological Institute) Cards 77-83	Vol I	Jan 1946
"Uspekhi Fizicheskikh Nauk" (Progress of Physical Sciences) Cards 19-22, 75, 76, 89-97, 100, 101	Vol XXXIII No 1 No 2 No 3	Jan 1947 Feb 1947 Mar 1947
"Uspekhi Matematicheskikh Nauk" (Progress of Mathematical Sciences) Cards 49-54	Vol II No 6 (22)	Nov/Dec 1947

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"Vestnik Mashinostroyeniya" (Herald of Machine  
Construction)  
Cards 30-37

No 1

Jan 1947

"Voyenno-Meditsinskiy Zhurnal" (Military Medical  
Journal)  
Cards 3, 56-62

No 12

Dec 1947

NOTE

In indexing these abstracts the following guides are used: MEDICINE - "Quarterly Cumulative Index Medicus," American Medical Association; CHEMISTRY - "Chemical Abstracts Subject Index," American Chemical Society; GENERAL - "Subject Headings for Technical Libraries," US Department of Commerce, Office of Technical Services.

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REF ID: A66666

<p>USSR/Electricity Safety Devices, High Frequency Circuits</p> <p>Nov/Dec 1947</p> <p>"Differential-Phase High Frequency Safeguards," G. I. Atabekov, G. V. Mikutskiy, 11 pp</p> <p>"Avtomatika i Telemekh" Vol VIII, No 6</p> <p>Summarizes several articles on this subject. Authors give classification of the circuit systems of high frequency safeguards, based on principle of differential phase. Briefly describe the circuits and critically analyze systems developed in Soviet Union and in foreign countries. Discuss the KRZ-151 safeguard developed by Pleshko, Long's safeguard, and those produced by Westinghouse and General Electric.</p> <p>IC 50T1</p>	<p>USSR/Electricity Lamps, Mercury Voltages</p> <p>Feb 1947</p> <p>"Convection in Superhigh Pressure Mercury Discharge," G. N. Rakhlin, All-Union Electrotech Inst, Moscow, 4 pp</p> <p>"Comp Rend Acad Sci URSS" Vol LV, No 5</p> <p>Discusses experiments with free-falling 250-watt AC lamps. During their free fall the luminous core photographed by special camera that fell with the lamp. Cathode-ray oscillograph simultaneously registered lamp voltage and current changes in the course of the fall. Photographs showed noticeable</p> <p>FDB 50T2</p>
<p>USSR/Electricity Generators, Electricity Medicine - Surgery</p> <p>Dec 1947</p> <p>"Utilization of Steam as Means of Illumination," Maj Ye. I. Balashov, Engineers, 4 pp</p> <p>"Voyenno-Medits Zhur" No 12</p> <p>Steam boilers of portable sanitary and technical equipment, in particular the ODP-2 and ADP apparatus, can be used as steam generators for portable power generator of 1.2-kw capacity. Power sufficient for all surgical needs of one unit, and permits enough power for three operating tables. Steam method of generating light is efficient since the steam can be</p> <p>IC 50T3</p>	<p>USSR/Electricity (Contd)</p> <p>Feb 1947</p> <p>broadening of the luminous core in the falling lamp. Submitted by S. I. Vavilov, 23 Sep 1946.</p> <p>FDB 50T2</p>
<p>USSR/Electricity (Contd)</p> <p>Dec 1947</p> <p>used for other purposes, e.g., for disinfecting clothes, and for bathing. Tests showed advisability of supplying medical services with portable, field steam electric generators.</p> <p>IC 50T3</p>	<p>USSR/Electricity Electric Power Production Power Plants - Design</p> <p>Dec 1947</p> <p>"1947 Index for the Journal, 'Elektricheskiye Stantsii'" 7 pp</p> <p>"Elektricheskiye Stantsii" No 12</p> <p>Contains general index for all articles appearing in "Elektricheskiye Stantsii" in 1947. Articles cover following fields: general questions, operation of power systems and stations, designing and general questions on construction and repair of electric circuits and power stations, fuel, transport, storage and consumption, boilers and boiler</p> <p>IC 50T4</p>
<p>USSR/Electricity Hydroelectric Stations Winterization</p> <p>Dec 1947</p> <p>"Format for Winter Operations" 1 1/2 pp</p> <p>"Elektricheskiye Stantsii" No 12</p> <p>Generally reports preparations various electric stations made for winter. Several stations already prepared for the winter, among which are Sevastopol' Hydroelectric Station and Kizelovskiy Hydroelectric Station. However, many have not completed this work. Among the latter are Stalinogorsk Hydroelectric Station and Kurakhov Hydroelectric Station. Electric</p> <p>IC 50T5</p>	<p>USSR/Electricity (Contd)</p> <p>Dec 1947</p> <p>equipment, turbine apparatus, preparation of water, automatic and remote control apparatus, control installations, high-voltage apparatus, overloading and insulation, relay safety devices, and secondary switches.</p> <p>IC 50T4</p>

RESTRICTED	FDB Periodical Abstracts Scientific No 50	RESTRICTED	
USSR/Electricity (Contd) power must be supplied at maximum even during winter for fulfillment of goals set by the Stalin Five-Year Plan.  IC 50T5	Dec 1947	USSR/Electricity Power Plants, Electric Electric Cutouts  "Preparation of Solenoid Assemblies of Oil Cutout Switches for Winter Operations" $\frac{1}{4}$ p  "Elektricheskiye Stantsii" No 12  Brief notice warns various power stations to prepare their oil cutout switches for winter operations. Methods to prepare these installations promulgated in Resolution No 48/E (4 Sep 1947) of the Technical Section, Ministry of Power Stations.  IC 50T6	Dec 1947
USSR/Electricity Power Plants, Electric Construction Industry  "Industrial Structures for Control Shafts at Power Stations" 1 p  "Elektricheskiye Stantsii" No 12  In the past these structures were heavy buildings using much cement, iron, and other critical materials. With advances in technology, however, lightweight and small-sized instruments and equipment are being produced. Buildings can now be constructed lighter. Describes construction of one of new-type buildings  IC 50T7	Dec 1947	USSR/Electricity Power Plants, Electric Boilers  "First Results of the Operation of High-Pressure Boilers," V. M. Larionov, Engr, 6 pp  "Elektricheskiye Stantsii" No 12  Gives brief performance record of two boilers, capacity 220 tons per hour at 125 atmospheres and temperature 500° C, and one IMZ turbogenerator, capacity 100,000 kw at 90 atmospheres and temperature 480° C. Installed at one of the largest electric stations in the Soviet Union and put into  IC 50T8	Dec 1947
USSR/Electricity (Contd) for such apparatus as cutout switches and various other control apparatus. Tabulates material needed for old-type and new-type housing. Cost of new type some 16 rubles less per cubic meter of space.  IC 50T7	Dec 1947	USSR/Electricity (Contd) operation toward the end of 1946. Describes installation of boiler units and preparations made to start operations. Discusses some results of operation and performance. These boilers appear to have been installed at ORGRES.  IC 50T8	Dec 1947
USSR/Electricity Hydroelectric Plants Boilers  "Starting Tests and the Attachment of Blower Shafts to Powerful Boiler Assemblies," M.A. Nadzharov, Candidate Tech Sci, 7 pp  "Elektricheskiye Stantsii" No 12  In 1946 Boiler Assembly No 2 of the Karagandinskiy hydroelectric station put into operation. Has water capacity of 120-150 tons per hour. Boiler assembly equipped with blower shafts to increase combustion efficiency of the furnaces. Reports performance of this assembly for first 1,000 hours of operation.  IC 50T9	Dec 1947	USSR/Electricity Power Plants, Electric Coal, Pulverized  "Automatic Feed for Coal Crushing Mills," M. A. Pivnik, Engr, 1 p  "Elektricheskiye Stantsii" No 12  Frequent cleaning needed for the inlet and outlet tubes and pipes. During cleaning period crushing mills must be stopped or slowed down thus lowering average performance of mill. In 1947 author developed method of automatic feeding of these mills with culm. Conducted experiments on Type Sh-16 mill. Method greatly cuts down need for frequent cleaning, and maintenance personnel requirements.  IC 50T10	Dec 1947

RESTRICTED	FDB Periodical Abstracts Scientific No 50	RESTRICTED
USSR/Electricity (Contd) Dec 1947 Discusses blower shafts in general, system of regulation and control, and thermal technical characteristics of the assembly.  IC 50T9	USSR/Electricity Dec 1947 Power Lines Circuit Breakers "Operation of Power Lines with Phase Control and Single-Pole Automatic Repeater-Type Break-In Systems," G. I. Lysakovskiy, L. Ye. Nebrat, V. N. Yasnikov, Engineers, 2 p "Elektricheskiye Stantsii" No 12 Recently, second power line of the KemerovoEnergo system changed over to phase control, 110-kv line running 83.6 km. Authors briefly describe other aspects of the circuit, such as automatic repeater-type break-in systems, and relays connected to this phased power line. IC 50T11	
USSR/Electricity Dec 1947 Power Plants, Electric Circuit Breakers "Dual Automatic Repeater-Type Break-In at the Armen-Energo," Docent I. P. Chumburidze, 1/2 p "Elektricheskiye Stantsii" No 12 Many articles have described the circuit hookups for method of multiple automatic repeater-type break-in systems. All have been very complex, however, requiring complex system of relays. Author describes simple dual automatic repeater-type break-in system requiring minimum of relays. States that same system IC 50T12	USSR/Electricity Dec 1947 Hydroelectric Plants Hydromechanics "Experience of Hydromechanical Soil Removal Operations at Hydroelectric Station Construction Sites," Ya. R., 1 1/4 pp "Elektricheskiye Stantsii" No 12 Gives briefly some of details of hydromechanical work accomplished at the Stalinogorsk hydroelectric station during 1946 through first part of 1947. All soil-removing work accomplished with aid of hydromechanization. By 1 Aug 1947, some 346,000 IC 50T13	
USSR/Electricity (Contd) Dec 1947 can be adopted for multiple ARB. States that system has been in effect for 8 1/2 years at ArmenEnergo, and has had to operate 270 times. No errors evidenced during periods of operation.  IC 50T12	USSR/Electricity (Contd) Dec 1947 cubic meters of earth removed this way. Author hopes that due to great advantages of this method for soil removing operations, it will be more widely used for construction sites with large available water supply.  IC 50T13	
USSR/Electricity Dec 1947 Power Transmission Voltage Regulators "Regulation of the Feeder Voltage as Means of Lowering the Energy Losses in City Power Circuits," A. A. Kulikovskiy, Engr, 4 pp "Elektricheskiye Stantsii" No 12 Has been noticed for long time that voltage eventually arriving at the point of use was much lower than at the point of source. Some loss inevitable. Author discusses system of transformers that can be used to equalize the voltage and greatly cut down energy losses in feeder lines. States that method IC 50T14	USSR/Electricity Dec 1947 Power Plants, Electric Relays, Electric "Statistical Data on the Performance of Relay Safety Devices in the Power Systems of the Ministry of Power Stations for the Period 1945-46," Ye. D. Zeylidzon, Engr, 7 pp "Elektricheskiye Stantsii" No 12 Important to gather statistical information to afford basis of comparison in the future. Statistics necessary for wide field of operation of the power systems. Most important to conduct an analysis of performance of generator safety devices, IC 50T15	

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USSR/Electricity (Contd)

Dec 1947

he suggests to be used only as supplement to already existing means of decreasing energy losses.

IC

50T14

USSR/Electricity  
Power Plants, Electric  
Electrical Equipment

Dec 1947

"From the Technical Section of the Ministry of Power Stations" 1½ pp

"Elektricheskiye Stantsii" No 12

Brief article tabulates response to questions put by various electric stations regarding the value of installing bypass systems into their circuits. Gives answers for the Molotov, Azerbaydzhan, Sverdlovsk, Gruzii, Kirov, Moscow, and Gorkiy hydroelectric stations. Answers such questions as the loss that would

IC

50T16

USSR/Electricity (Contd)

Dec 1947

occur to the region while the electrostation is being re-equipped, time required to make the connection, and the system thought to be most advantageous for the particular region.

IC

50T16

USSR/Electricity - Development

Jan 1947

"Review of F. Veytkov's 'Electrical Yearbook'" 1 p

"Uspekhi Fiz Nauk" Vol XXXIII, No 1

This 320-page book is account of development of various electrical phenomena. Only available book having such information and therefore valuable addition to Soviet scientific literature. Only disadvantages: Written in terminology that would confuse layman and has great deal of misinformation. Latter probably due to fact that Veytkov did not avail himself of many new developments in the electrical field. GosEnergo Publishing House published 50,000 copies of this second edition.

IC

50T19

USSR/Electricity (Contd)

Dec 1947

differential transformer safety devices, and several others. Performance of safety devices must be noted from standpoint of operation in unit as well as individual operation. Also discusses the AVR. In 1946, 400 AVR units in operation.

IC

50T15

USSR/Electricity  
Power Plants, Electric

Dec 1947

"Comments on L. I. Dvoskin's Article, 'Switching Systems and Construction of Substations of 110-KW Capacity with Bypassing Circuit Breakers'," G. A. Kireyev, M. M. Belousov, A. I. Nazarov, V. N. Gurevich, Engineers, Etc., 2 pp

"Elektricheskiye Stantsii" No 12

Presents views, comments, and suggestions by several engineers on Dvoskin's article that appeared in "Elektricheskiye Stantsii" No 1.

IC

50T17

USSR/Electricity - Conservation  
Fuel - Conservation

Dec 1947

"Rationalizing the Consumption of Fuel and Electrical Power," V. G. Usanova, GlavVostokEnergo Reft, 4½ pp

"Energeticheskii Byull" No 12

Rational use of fuel and electrical power most important for the national economy. Most interesting one-page table gives relative consumption and norms set for various enterprises. Table takes in fuel and electric power. Also gives table showing average expenditure of electric power during drilling operations. Author states that for most advan-

IC

50T18

USSR/Electricity - Conservation (Contd) Dec 1947

tageous use of electric power, equipment must perform at optimum, and new more efficient methods should be adopted as soon as possible. Figures in tables for 1945 through 1947.

IC

50T18



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USSR/Electricity Dielectrics - Development Dielectrics - Conductivity  "Physics of Dielectrics," G. I. Skanavi, 29 pp "Uspekhi Fiz Nauk" Vol XXXIII, No 2  In commemoration of the 30th anniversary of Soviet physics, author presents historical article on developments in the field of physics of dielectrics in the Soviet Union. Briefly discusses such aspects as ion conductivity of dielectrics, dielectric polarization and dielectric losses, new materials for use as insulators, arc-overs in dielectrics, aging of insulators and control over aging process. Also LC 50T20	Feb 1947	USSR/Electronics Conductors, Semi  "Soviet Investigations in the Field of Electronic Semiconductors," B. I. Davydov, 8 pp "Uspekhi Fiz Nauk" Vol XXXIII, No 2  "Today's physics is tomorrow's technology." With this statement author launches discussion of various achievements by Soviet scientists in the field of electronic semiconductors. Starts his history around 1928 and carries through to 1940, mentioning work in this field by such renowned Soviet scientists as A. F. Ioffe, M. N. Noskov, V. P. Zhuz, A. V. Ioffe, etc. LC 50T21	Feb 1947
USSR/Electricity (Contd)  mentions Soviet scientists who contributed to the physics of dielectrics, such as Vul, Gokhberg, etc.  LC 50T20	Feb 1947	USSR/Electronics Impulse, Electric Sound  "N. A. Kaptsov's Book, 'Electrical Phenomena in Gases and Vacuums,'" N. D. Morgulis, 2 pp "Uspekhi Fiz Nauk" Vol XXXIII, No 3  Reviews 808-page book published, 1947, in Leningrad by GosTekh Publishing House. States that release of book an event that should be hailed by all Soviet workers engaged in electronic physics, or in the transfer of electric impulses into sound. Third issue of series, and comparison of the three volumes tends to show the great progress of Soviet LC 50T22	Mar 1947
USSR/Engineering Gas Turbines Efficiency, Industrial  "Some Fundamental Aspects of Assembling Gas Turbines," M. V. Gladkov, OrgEnergOHeft, 6 pp "Energeticheskiy Byull" No 12  Presents various problems that might arise due to faulty installation, and various methods of trouble shooting and repair. Discusses in particular type A-820 turbocompressor with Terry-type C-1 steam turbine, and type A-721 turbocompressor with Terry-type C-2 steam turbine. LC 50T23	Dec 1947	USSR/Electronics (Contd)  science in this field. States that book is a must for all young technicians as best method to learn of all contemporary techniques.  LC 50T22	Mar 1947
USSR/Engineering Training Construction Industry  "On the Job Training for Engineer Specialists" 1/4 p "Sbornik po Stroitel'stvu" No 1  On 13 Nov 1947, Ministry of Construction circulated bulletin No MR-5266-62 to all chiefs and heads of all organizations and enterprises of the ministry. Calls for expansion of on the job training program for workers to permit them to qualify as engineering specialists. All-Union Industrial Correspondence Schools assist in this endeavor. LC 50T24	Jan 1948	USSR/Engineering Telemechanics Instruments, Measuring  "Scientific Council of the Institute of Automatics and Telemechanics" 1 1/4 pp "Avtomatika i Telemekh" Vol VIII, No 6  Most important feature of 27 May 1947 session of the Scientific Council of the Institute of Automatics and Telemechanics: Judgment of article by A. V. Fremke, "Methods of Technical Analysis and Calculation of the Transition Processes in Telemetering Systems," presented as his doctor's thesis. Work well received and highly praised by such LC 50T25	Nov/Dec 1947

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FDB Periodical Abstracts Scientific No 50

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USSR/Engineering  
Regulators  
Synchronous Machines

Nov/Dec 1947

"Graphoanalytical Method of Evaluating the Dependability of Linear Regulatory Systems," Z. Sh. Blokh, 9½ pp

"Avtomatika i Telemekh" Vol VIII, No 6

Presents criterion for the sensitivity of linear regulatory systems, based on direct observation of corresponding characteristic equations as function of complex variable equation. Describes general graphic method of making characteristic curves with the aid of multiangular coefficient of the characteristic

IC

50T26

USSR/Engineering (Contd)

Nov/Dec 1947

noteworthy persons as Prof B. I. Domanskiy, Prof V. V. Bazilevich, and B. N. Petrov, Doctor of Technical Sciences. As result of the excellent thesis, A. V. Fremke now Doctor of Technical Sciences. In same session Engineer L. P. Melamed voted Candidate in Technical Sciences.

IC

50T25

USSR/Engineering (Contd)

Nov/Dec 1947

equations. Discusses process of constructing and analyzing the dependability of linear regulatory systems that also permits study of the effect on the dependability of each of the coefficients of the characteristic equation individually. Exposition can be represented numerically by construction of characteristic curve to the seventh degree for the linear regulatory systems.

IC

50T26

USSR/Engineering  
Regulators  
Synchronous Machines

Nov/Dec 1947

"Character of Irregularity of a Regulation Curve," Z. Ya. Beyrakh, 4½ pp

"Avtomatika i Telemekh" Vol VIII, No 6

Describes method of automatic regulation based on Ponsel's principle. Shows that use of principle in construction of regulatory system gives systems having a high degree of accuracy and dependability but, on the other hand, having tendency to lower the amplitude of fluctuation of the regulatory parameters during transition process.

IC

50T27

USSR/Engineering  
Regulators  
Resonators

Nov/Dec 1947

"Utilization of Resonator as Means of Eliminating Nonlinearity in Automatic Regulators," V. A. Besekerskiy, 6½ pp

"Avtomatika i Telemekh" Vol VIII, No 6

Describes method of eliminating nonlinearity in automatic regulators, connected to the presence of the force of dry friction, dead zone in the servomotor, and clearance and backlash in the coupled parts. Explains how possible by introduction of

IC

50T28

USSR/Engineering  
Amplifiers, Magnetic  
Regulators

Nov/Dec 1947

"Contemporary Magnetic Amplifiers," M. A. Rozenblat, 11½ pp

"Avtomatika i Telemekh" Vol VIII, No 6

Gives summary of data contained in several articles, Soviet as well as foreign. Describes some basic types of magnetic amplifiers used in contemporary appliances in automatics as well as telemechanics. Discusses basic characteristics of these systems, and describes the fields in which each might be

IC

50T29

USSR/Engineering (Contd)

Nov/Dec 1947

periodic resonator into the circuit of automatic regulator to eliminate the dead zone of the regulator sensitivity, and to increase accuracy and dependability of regulation.

IC

50T28

USSR/Engineering (Contd)

Nov/Dec 1947

used. Also describes method to increase the sensitivity and the coefficient of amplification of the magnetic amplifier.

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RESTRICTED	FDB Periodical Abstracts Scientific No 50	RESTRICTED
USSR/Engineering Efficiency, Industrial Jan 1947  "Technical Text--In the Service of the New Stalin Five-Year Plan," Yu. P. Konyushaya, Chief, MashGiz Publishing House, 4 pp  "Vest Mashinostroy" No 1  Lists some of the technical texts and articles that appeared during the past year. Texts cover such fields as: electrification of the people's economy, increase of production, mechanization of complex operations, etc.  IC 50T30	USSR/Engineering Machinery - Construction Jan 1947  "Tasks of the Second Year of the Fourth Five-Year Plan" 3 pp  "Vest Mashinostroy" No 1  Briefs the more important works accomplished by the various organizations under jurisdiction of the Ministry of Heavy Machinery Construction. Mentions such giants of the machinery world as 100,000-kw hydraulic turbine produced by the Leningrad Metals Works imeni Stalin for installation at the Dneprovsk Hydroelectric Station imeni Lenin, heavy  IC 50T31	
USSR/Engineering Machinery - Construction Bibliography Jan 1947  "New Releases by MashGiz Publishing House" 1½ pp  "Vest Mashinostroy" No 1  Following books published on machine construction: "Metal Cutting Machine Tools"; "Handbook on Construction Steels"; "Gas Turbine in the Operation of a Blast Furnace"; "Fundamental Relationships in Machine Construction"; "Changeover of an Internal Combustion Engine to Gas Fuel"; and "Operating Processes of an Internal Combustion Engine." Following books published on technology of machine production:  IC 50T32	USSR/Engineering (Contd) Jan 1947  drilling rigs produced by the Ural Machine Works for various oil fields, and many new types of agricultural machinery.  IC 50T31	
USSR/Engineering (Contd) Jan 1947  "Rapid Automatic Welding"; "Basic Technical Rationalization in Machine Construction"; Vol III of "Catalogue of the Performance of Cutting Machinery"; "Technical Control in Tractor Works"; and "Various Questions on Use of Modified Pig."  IC 50T32	USSR/Engineering Machinery - Design Gears, Planetary Jan 1947  "How to Obtain a Highly Economical Simple Planetary Gear," L.A. Malkin, Candidate Tech Sci, 4½ pp  "Vest Mashinostroy" No 1  Author presents method of calculations which should aid greatly in clarifying the phenomenon of transmission and should prove very valuable to all classes of engineers. The revolutions as well as the moment of rotation transferred from planetary system to series system. To carry out these calculations, necessary to have revolution with angular  IC 50T33	
USSR/Engineering Machinery Sparks, Electric Jan 1947  "Electric Spark Method of Finishing Metals," B. R. Lazarenko, Candidate Tech Sci, Laureate of Stalin Prize, 12 pp  "Vest Mashinostroy" No 1  Constant research has gone on to determine new and harder steels and alloys that could be used as tools for the finishing of metal parts. Recently, however, discovered that an electric spark had finishing effect on metal and new field was opened. Author discusses  IC 50T34	USSR/Engineering (Contd) Jan 1947  velocity equal, and opposite to the absolute transverse velocity. Refers to his article in "Vestnik Mashinostroyeniya" No 11/12, 1946, in which he established certain fundamentals upon which he bases present calculations.  IC 50T33	

RESTRICTED	FDB Periodical Abstracts Scientific No 50	RESTRICTED
USSR/Engineering (Contd) Jan 1947 apparatus, ways, and advantages of using this new method. Notes that in addition to the wide range of uses, method possesses accuracy that can be attained only by electric apparatus.  IC 50T34	USSR/Engineering Machinery - Construction Stamping, Metal Jan 1947 "Stamping Parts Out of Liquid Metal," V. M. Plyat-skiy, Candidate Tech Sci, 11½ pp "Vest Mashinostroy" No 1 In recent years much research has gone on to find practical method for stamping small metal parts out of liquid metal. Author compares the three main recognized methods: 1) Ulitovskiy's method, 2) Bobrov's method, 3) his own method. States that this method of producing small parts very nearly approaches method of casting under pressure. Advan- IC 50T35	
USSR/Engineering Machinery - Construction Casting, Centrifugal Jan 1947 "Centrifugal Casting of Shaped Parts," S. B. Yudin, Engr, 9½ pp "Vest Mashinostroy" No 1 Author very favorable in his comments on the economy of metal and high productivity of centrifugal method of casting that has been used in the US for several years. Cites use of this method at the Ford Plant. Refers to article by S. Ye. Rozenfel'd in "Vestnik Mashinostroyeniya" No 12, 1944, that summarized some facts on this method of casting. IC 50T36	USSR/Engineering (Contd) Jan 1947 tages of stamping liquid metal lie in the fact that both forming and the crystallization processes are accomplished under pressure, thus making it possible to obtain parts that will not contain air holes, and with surfaces that do not require finishing.  IC 50T35	
USSR/Engineering Machinery - Construction Castings Jan 1947 "Production of Large Casts from Modified Pig in Heavy Machine Production," M. I. Yakhnenko, V. R. Val'dman, V. A. Vlasova, Engineers, 7½ pp "Vest Mashinostroy" No 1 Briefly describe method developed and adopted by the Novo-Kramatorskiy works, where various modifiers added to molten pig intended for casting parts for heavy machinery. Authors note that it is important to add the modifiers in chunk form, dimensions of IC 50T37	USSR/Geological Prospecting Dielectrics - Constants Mar 1947 "Relation of the Dielectric Constants of Rocks to Their Mineralogical Composition," A. G. Tarkhov, All-Union Inst Geol Prospecting, Leningrad, 7 pp "Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 2 Previous papers on subject have very important shortcoming, i. e., moisture of samples investigated was not taken into consideration. Experiments will give same results as calculations if carried out correctly. Notes that value of the dielectric FDB 50T38	
USSR/Engineering (Contd) Jan 1947 which are determined by temperature of metal and weight of intended cast. Engineers Ya. L. Esterson, Ye. S. Shul'gin, and L. S. Yashin aided greatly in experimental part of the work. Research continues.  IC 50T37	USSR/Geological Prospecting (Contd) Mar 1947 constant of acid rocks less than that of the base rocks. Submitted by Academician L. S. Leybenzon.  FDB 50T38	

RESTRICTED		FDB Periodical Abstracts Scientific No 50		RESTRICTED			
USSR/Geology Oil Regions		Feb 1947		USSR/Geology Tectonics		Mar 1947	
<p>"Certain Geochemical Processes in the Permian Deposits of the Sarabikulovo Oil Pool," M. S. Kaveyev, Geol Inst, Kazan Br Acad Sci USSR, 3 pp</p> <p>"Comp Rend Acad Sci URSS" Vol LV, No 5</p> <p>In Tataria numerous oil pools in the Permian deposits of the southwestern part of the area have been recorded as seepages of bitumen on the surface and opened up by wells. Although these pools at present of no great practical value, their geochemical study of some interest, and contributes to the knowledge of the geologic nature of the Permian oil. Submitted by D. S. Belyankin, 4 Aug 1946.</p> <p>FDB 50T39</p>				<p>"Fundamental Ideas of the Newest Tectonics of the Russian Platform," N. I. Nikolayev, 13 pp</p> <p>"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 2</p> <p>Summarizes fundamental directions along which the newest tectonics of the Russian platform have been and being studied. Presents historical summary, and critical analysis of the latest work (B. L. Lichkov, 1944), and, in addition, map of the tectonics of the Russian platform (European USSR) according to the latest advances in the science. Extensive bibliography. Submitted by Academician L. S. Leybenzon.</p> <p>FDB 50T40</p>			
USSR/Geology Seismology		Mar 1947		USSR/Geophysical Prospecting Magnetic Fields		Jan 1947	
<p>"Seismic Velocities in Stratified Media," Yu. V. Riznichenko, Inst Theoretical Geophysics, Acad Sci USSR, 19 pp</p> <p>"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 2</p> <p>At present, when the problem of more detailed and exact determination of the structure of geological media is before seismometry, the question of what velocities are determined by different methods of seismometry, and the relation between these velocities gains in interest. Author gives determination of</p> <p>FDB 50T41</p>				<p>"Calculations of the Spatial Distribution of Potential Fields and Their Application to Prospecting Geophysics," B. A. Andreyev, 14 pp</p> <p>"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 1</p> <p>Discusses methods of calculating the spatial distribution of potential fields in connection with various problems of geophysical prospecting. Recommends the formula that solves Dirichlet's problem for infinite plane. Theoretical considerations and practical examples of calculation show that</p> <p>FDB 50T42</p>			
USSR/Geology (Contd)		Mar 1947		USSR/Geophysical Prospecting (Contd)		Jan 1947	
<p>following concepts: wave velocity, effective velocity, layer velocity, boundary velocity, and other velocities met with in the seismometry of the USSR. Discusses relations between different velocities for different cases of the structure of geologic media where seismic waves are propagated. Fifty-three item bibliography. Submitted by Academician L. S. Leybenzon.</p> <p>FDB 50T41</p>				<p>application of formula sufficiently easy, and gives great accuracy in results. Shows that possible to use method to analyze results obtained in aeromagnetic surveys, and to reduce results of geophysical observations to one plane. Submitted by Academician L. S. Leybenzon.</p> <p>FDB 50T42</p>			
USSR/Geophysics Stratosphere Dust		Jan 1947		USSR/Geophysics Magnetic Fields - Earth		Jan 1947	
<p>"Possible Influence of Dust on the Vertical Movement of the Air, and the Isotherms in the Stratosphere," L. R. Rakipova, Cent Geophys Obs, Leningrad, 5 pp</p> <p>"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 1</p> <p>Attempts to show the possibility of the air's vertical movements in the stratosphere. As reason for such movements, suggests the heating of air by cosmic dust contained in the air. Physical picture obtained would serve as confirmation of the hypothesis of "intermixed</p> <p>FDB 50T43</p>				<p>"Spherical Harmonic Analysis of the Geomagnetic Field for 1945," V. I. Afanasyeva, Inst Terrestrial Magnetism, 6 pp</p> <p>"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 1</p> <p>Describes procedure and results of spherical harmonic analysis of the earth's magnetic field for 1945. Comparing author's results with those of Schmidt (1885) and Bauer (1922) shows that in 1922 - 1945 the earth's magnetic moment decreasing 2.3 times slower than 1885 - 1922. Submitted by Academician L. S. Leybenzon.</p> <p>FDB 50T44</p>			

RESTRICTED		FDB Periodical Abstracts Scientific No 50		RESTRICTED			
USSR/Geophysics (Contd)		Jan 1947		USSR/Geophysics		Jan 1947	
atmosphere," and would also explain the isotherms in the stratosphere. Submitted by Academician L. S. Leybenzon.				Magnetic Fields - Earth			
				"Magnetic Field of West Siberia," N. Ye. Malinina, Inst Terrestrial Magnetism, 18 pp			
				"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 1			
				Regional magnetic anomalies of the territories of West Siberia mapped and published for first time. Maps made without use of the results of detailed magnetic surveys carried out by number of organizations, chiefly by the West Siberian Expedition of the State-Union Geophysical Trust, due to the war			
FDB		50T43		FDB		50T45	
USSR/Geophysics		Mar 1947		USSR/Geophysics (Contd)		Jan 1947	
Solar Radiation							
"Photometry of the Twilight Glow," M. V. Gushchina, A. D. Zamorskiy, 9 pp				and the necessity of rapid work. Maps may be used to solve general questions of geologic structure in West Siberia, and to plan geophysic and geologic prospecting work. Future mapping will use more complete data then available. Submitted by Academician L. S. Leybenzon.			
"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 2							
Photography of the particolored horizontal strip along the horizon caused by the absorption and scattering of the light of the twilight light-body on the way to the observer's eye, carried out through red and green filters. Data shows that the more the air mass is covered with dust, the larger the relation green/red and the higher the angle-height of the maxi-							
FDB		50T46		FDB		50T45	
USSR/Geophysics (Contd)		Mar 1947		USSR/Geophysics		Mar 1947	
mum of brightness of the given color. With the sun's depth under the horizon the angle-height of the maximum of brightness decreases. The relation green/red decreases with the sun's depth to 20°, and then increases slowly to the end of the twilight. The relation green/red increases continuously from the horizon to 20°. Submitted by Academician L. S. Leybenzon.				Ionosphere - Research			
				"Problem of the Coefficient of the Ionosphere's Recombination and the Determination of Its Quantity at the Time of the 20 May 1947 Eclipse in Brazil," Ya. L. Al'pert, A. A. Aynberg, Lab Oscillation, Phys Inst imeni P. N. Lebedev, Acad Sci USSR, 4 pp			
				"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 2			
				Authors give numerical summary of results obtained by ionospheric research during the 9 Jun 1945 eclipse in the USSR, and results of calculations for supposed changes of the ionization layer during			
FDB		50T46		FDB		50T47	
USSR/Hydrology		Feb 1947		USSR/Geophysics (Contd)		Mar 1947	
Water, Underground							
"Complex Method of Estimating the Underground Feeding of Rivers," B. I. Kudelin, Lab Hydrogeol Problems, Acad Sci USSR, 4 pp				the expected eclipse on 20 May 1947 in Brazil. Establish that it is not possible to describe results of measurements in Moscow sufficiently well by the usual equations of the ionization state, and that results of measurements correspond to nonintensive sporadic layer E. Submitted by Academician N. D. Papaleksi.			
"Comp Rend Acad Sci URSS" Vol LV, No 5							
Hydrologic methods for estimating the underground feeding of rivers by their low normal water-level discharges or by the hydrograph inadequate. Underground feeding of rivers is complex phenomenon, composed of many elements of the run-off. Dynamics of the run-off at individual water-bearing strata drained by the river valley determined by the regime of the							
FDB		50T48		FDB		50T47	

RESTRICTED	FDB Periodical Abstracts Scientific No 50	RESTRICTED
USSR/Hydrology (Contd)	Feb 1947	USSR/Mathematics - Biography
water-bearing horizons, by that of the river, and by the degree of hydraulic connection between the ground water flow and the river. Author discusses the question of the run-off of underground waters from water-bearing strata hydraulically connected with the river, one of the main sources of underground supply for most plain rivers. Submitted by F. P. Savarenskiy, 31 Jul 1946.		Nov/Dec 1947
		"Meetings of the Moscow Mathematical Council" 7 1/2 pp
		"Uspekhi Matematicheskikh Nauk" Vol II, No 6 (22)
		Briefly records proceedings of the 30 Sep, 7 Oct, 14 Oct, and 21 Oct 1947, meetings of the Moscow Mathematical Council. The following submitted articles for evaluation: A. Ya. Khinchin, A. D. Myshkis, N. Ya. Vilenkin, L. I. Volkovskiy, V. M. Dubrovskiy, V. I. Levin, G. Ye. Shilov, B. A. Rozenfel'd, etc.
FDB	50T48	LC
		50T49
USSR/Mathematics - Biography	Nov/Dec 1947	USSR/Mathematics - Biography
"Vladimir Ivanovich Smirnov," S. L. Sobolev, 2 pp		Nov/Dec 1947
"Uspekhi Matematicheskikh Nauk" Vol II, No 6 (22)		"Dmitriy Yevgen'yevich Men'shov," N. K. Bari, L. A. Lyusternik, 3 pp
Brief biography of V. I. Smirnov written in honor of his 60th birthday and the 35th anniversary of his scientific endeavor. At present, professor at Leningrad State University, has written many articles on complex variables. On his 60th birthday is in excellent health, and can be expected to contribute many more productive years to the service of mathematics.		"Uspekhi Matematicheskikh Nauk" Vol II, No 6 (22)
		Short biography written in honor of D. Ye. Men'shov's 25th anniversary of service with the Mathematical Collective of Moscow University. Briefly mentions some of his work.
IC	50T50	IC
		50T51
USSR/Mathematics - Calculators Mathematics - Algebra	Nov/Dec 1947	USSR/Mathematics - Bibliography Mathematics - Equations, Differential
"Algebraization of One Problem of the Theory of Control by Calculating Automats," L. Ye. Sadovskiy, 3 1/2 pp		Nov/Dec 1947
"Uspekhi Matematicheskikh Nauk" Vol II, No 6 (22)		"Theses Submitted to MIAN in the Period 1946 - 1947" 1/2 p
Presents part of piece of work, read at seminar of Prof L. A. Lyusternik, in the field of approximate calculations. Is part of the work done by I. Ya. Akushsk, and can be put in the field of research of the control of calculating automats by means of direct selection. Work leads up to the formation of formulas to calculate the performance of series of such calculating machines.		"Uspekhi Matematicheskikh Nauk" Vol II, No 6 (22)
IC	50T52	Following submitted for judgment before the Scientific Council of Mathematics Institute imeni Steklov. Doctor's thesis: I. R. Shafarevich, "Studies on the Theory of Limited Distributions." Candidate's theses: A. M. Yaglom, "The Statistic Reversibility of the Brownian Movement"; M. I. Vishik, "Orthogonal Projections for Linear Elliptical Differential Equations"; and O. P. Kramer, "Numerical Integration
		IC
		50T53
USSR/Mathematics - Bibliography	Nov/Dec 1947	USSR/Mathematics - Bibliography (Contd)
"Works of Mathematical Institute imeni V. A. Steklov," N. Yefimov, 4 pp		Nov/Dec 1947
"Uspekhi Matematicheskikh Nauk" Vol II, No 6 (22)		of some Common Differential Equations." N. G. Chebotarev, A. I. Mal'tsev, D. K. Faddeyev, M. A. Leontovich, A. Ya. Khinchin, S. L. Sobolev, I. G. Petrovskiy, L. A. Lyusternik, and M. F. Subbotin acted as judges.
Subject publication began in 1932. Author presents the index for the articles which appeared in 23 volumes of "Works of Mathematical Institute imeni V. A. Steklov." Four of these volumes published in 1947. Authors: N. I. Lobachevskiy, I. M. Vinogradov, Khua-Lö-Ken, G. Ye. Shilov, V. A. Ditkin, I. S. Gradshteyn, L. Ya. Neyshuler, L. A. Lyusternik, I. Ya. Akushskiy, etc.		
IC	50T54	IC
		50T53

RESTRICTED	FDB Periodical Abstracts Scientific No 50	RESTRICTED	
USSR/Mathematics - Curves Mathematics - Series	Nov/Dec 1947	USSR/Medicine - Military Medicine - Osteology	Dec 1947
"Geometric Interpretation of V. N. Kovalenkov's Method of Division," V. N. Kuznetsov, 6 pp		"Osteoplasty of Infected Areas," Prof I. L. Krupko, Lt Col, Med Corps, Chair Orthopedics, Mil Med Acad imeni S. M. Kirov, 6 pp	
"Avtomatika i Telemekh" Vol VIII, No 6		"Voyenno-Medits Zhur" No 12	
Author shows that Kovalenkov's method of "fission" in the theory of n-related developments, from the geometric standpoint, conforms to the resolution of the curve of the fourth order to two curves of the second order.		Danger in osteoplasty of infected areas highly exaggerated. Krupko describes the combination of osteoplasty and osteotomy. Claims that this combined operation will serve not only to diminish the possibilities of osteomyelitis, but severe malformation, as well as shortening of the limbs. States, however, that any mistake made in this combined	
IC	50T55	IC	50T56
USSR/Medicine - Skin, Diseases Medicine - Penicillin	Dec 1947	USSR/Medicine - Military (Contd)	Dec 1947
"Treatment of Pyococcic Infection of the Skin with Penicillin," Lt Col V. M. Kreyenin, Med Corps, 4 pp		operation will lead to extreme conditions beyond imagination. Recommends use of penicillin during operation. Chief of Chair of Orthopedics: Prof S. A. Novotel'nov, Maj Gen, Medical Corps.	
"Voyenno-Medits Zhur" No 12			
First use of penicillin as local application by Mashkilleyson. Kreyenin presents results of treatment given to more than 156 patients at the clinic of the Moscow Garrison. Found to be the most effective prophylaxis when applied locally or rectally. Average daily dose: 600,000 Oxford units in aqueous solution. Average 700,000-unit dose per day sufficient to speed cure of carbuncles and furuncles. Penicillin emulsion found to be most effective for curing pyoderma.			
IC	50T57	IC	50T56
USSR/Medicine - Epidemiology Medicine - Hospitals, Military	Dec 1947	USSR/Medicine - Bacteria Medicine - Septicemia	Dec 1947
"Epidemiological Work in Hospital for Infectious Diseases during the Period 1941 - 1945," Maj M. G. Tagiyev, Med Corps, 5½ pp		"Duration of Infection in Humans Caused by Breslau Bacillus," Maj N. S. Polyanskiy, Med Corps, 2½ pp	
"Voyenno-Medits Zhur" No 12		"Voyenno-Medits Zhur" No 12	
Epidemiologic work in hospital for infectious diseases as important as actual treatment. Always important to carry out epidemiologic work in those areas where infections have occurred. Most important that such hospital be equipped with own laundry. Value of such hospital increased if its work coordinated with that of the army or front-line epidemiologic services.		Under adverse conditions of the body Breslau B. will enter the blood stream and cause septic type of disease. Can enter the body through the alimentary tract as well as skin abrasions. As yet, no method of isolating Breslau B. from the organs of the body, and studies being carried out.	
IC	50T58	IC	50T59
USSR/Medicine - Military Medicine - Sterilization	Dec 1947	USSR/Medicine - Military Medicine - Bibliography	Dec 1947
"Methods of Sterilizing Petri Dishes under Field Conditions," Maj Ya. I. Yakovlev, Med Corps, 1 p		"Military Medical Bibliography for the Period 1941 to 1945," Col I. D. Makarov, Med Corps, 6 pp	
"Voyenno-Medits Zhur" No 12		"Voyenno-Medits Zhur" No 12	
One effective method of sterilizing Petri dishes is by autoclaving for period of 30 - 45 minutes at pressure of 1 - 1½ atmospheres. Not very practical in many cases since the dishes crack and in any case, the dishes become covered with moisture. Under field conditions, even more impractical. Author describes simple effective method of sterilizing Petri dishes under field conditions.		Part of series continuing through all issues of "Voyenno-Meditsinskiy Zhurnal" in 1947. This part contains bibliography of articles by various authors on the treatment of injured spines and medulla. Series continued.	
IC	50T60	IC	50T61



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FDB Periodical Abstracts Scientific No 50

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USSR/Medicine - Military Medicine - Hygiene and Sanitation	Dec 1947	USSR/Medicine - Botany Medicine - Arctic Studies	Feb 1947
"Collected Index of Articles Which Appeared in 'Voyenno-Meditsinskiy Zhurnal' for the Year 1947," 4 pp		"Geographical Regularities of Plant Introduction as Observed in the Polar Botanical Garden," N. A. Avrorin, Kirov Sta, Kola Peninsula, Acad Sci USSR, 4 pp	
"Voyenno-Medits Zhur" No 12		"Comp Rend Acad Sci URSS" Vol LV, No 5	
Lists articles which appeared in 1947 in the following fields: general political questions, general questions on military medicine, therapeutic and prophylactic questions, organization and tactics of the medical service, questions of antiepidemic security of troops, questions of military hygiene, and history of military medicine.		Polar-Alpine Botanical Garden of the Kola Branch of Academy of Sciences of the USSR situated on the north boundary of the Taiga Zone in the Khibiny Mountains, near Kirovsk, Murmansk Province, Kola Peninsula, 33° 39' E, 67° 39' N, i.e., 120 km north of the Polar Circle. Total of 2,000 plant species	
IC	50T62	FDB	50T63
USSR/Medicine - Public Health, Centers Medicine - Health - Education	Dec 1947	USSR/Medicine - Botany (Contd)	Feb 1947
"Library Shack, the Health and Education Center on a Farm" S. A. Stepanov, 3½ pp		belonging to 70 families tested here in the open between 1932 - 1946. Fructification observed in 671 of these species. Plants transported from the most distant countries found able to pass the full life cycle and yield ripe seed under conditions of the Kola Peninsula. List of species appended. Submitted by V. N. Sukachev, 8 Dec 1946.	
"Fel'dsher i Akusherka" No 12			
Briefly describes the local offices and organizations set up by the Moscow Oblast Station for Health Education at the various farms. Discusses some aspects of organizing such health education centers in the libraries of various farms in the Moscow Oblast.			
IC	50T64	FDB	50T63
USSR/Medicine - Diagnosis Medicine - Indicators	Dec 1947	USSR/Medicine - Helminthes and Helminthiasis Medicine - Worms	
"Differential Diagnosis of Some Diseases," I. I. Veytsenfel'd, 1 p		"Helminthiasis and Its Control," M. Ya. Ass, Candidate Biol Sci, 7½ pp	
"Fel'dsher i Akusherka" No 12		"Fel'dsher i Akusherka" No 12	
Author, surgeon's assistant, tells of three cases he was called in to diagnose. Diagnosed two cases correctly and gave proper treatment. Erroneously diagnosed third case, however, and patient died. Stresses importance of having surgeon's assistants cognizant of symptoms of various types of disease and make proper diagnosis.		Concludes article begun in the previous issue of "Fel'dsher i Akusherka." Explains process by which worms transfer from man to animal and from animal back to man. Then sets up some methods for controlling the diffusion of these parasites.	
IC	50T65	IC	50T66
USSR/Medicine - Viruses Medicine - Encephalitis, Epidemic	Dec 1947	USSR/Medicine - Collodion Medicine - Membrane	Dec 1947
"Viruses and Virus Diseases," M. I. Sokolov, Candidate Tech Sci, 4 pp		"A New Collodion," P. O. Chernyak, ½ p	
"Fel'dsher i Akusherka" No 12		"Fel'dsher i Akusherka" No 12	
Discusses wide diffusion of virus diseases and presents methods of controlling them. Discusses diseases such as Far Eastern encephalitis, Japanese encephalitis, mosquito fever, and yellow fever. Discusses prevention methods.		Presents formula for new-type collodion for wounds. Collodion elastic and water-resistant, and solves many problems of the old-type collodions. Formula: Rp. Zinci oxydati 1.0 + Ol. Ricini gtt. V + Ol. Vaselinei gtt. III + Misce add. in vitro + cum collodio 20.0 + DS. glue for bonding.	
IC	50T67	IC	50T68

RESTRICTED	FDB Periodical Abstracts Scientific No 50	RESTRICTED
USSR/Meteorology Temperature - Measurements	Jan 1947	USSR/Meteorology Humidity - Measurements
"Average Yearly Distribution of Temperature in the Earth's Atmosphere Taking into Account the Continents and Oceans," Ye. N. Blinova, Cent Inst Prognosis, 11 pp		"Distribution of Specific Humidity in the Free Atmosphere," A. Kh. Khrgian, Cent Aerological Observatory, Moscow, 3 pp
"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 1		"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 2
Author solves problem of average yearly distribution of temperature in the earth's atmosphere. Radiation and turbulent heat conduction taken into account. Instead of the temperature $T$ , convenient to find the function $E = f\sigma T^4$ , where $f$ is Hulbert's factor,	50T69	Gives table of mean values of atmosphere's specific humidity above Moscow at heights up to 4 km for different months. Calculations carried out on basis of 1,950 airplane ascents. Interpolation formula given for dependence of specific humidity on height, and some deductions made on connection
FDB		FDB
USSR/Meteorology (Contd)	Jan 1947	USSR/Meteorology (Contd)
taking into account selective absorption, and the Stefan-Boltzmann constant. Problem leads to the solution of one linear partial differential equation for $E(z, \theta, \psi)$ , where $z$ is the height above the earth's surface, colatitude, and $\psi$ longitude. Results of calculation given, and compared with empirical data. Submitted by Academician L. S. Leybenzon.		between this element and processes of turbulence, evaporation, and condensation. Submitted by Academician L. S. Leybenzon.
FDB	50T69	FDB
USSR/Meteorology Mathematics, Applied	Mar 1947	USSR/Meteorology Temperature
"Hydrodynamic Theory of Monsoons on a Round Island," P. S. Lineykin, Inst Theoretical Geophys, Acad Sci USSR, 24 pp		"Problem of the Rational Application of Equivalent Temperature," V. P. Puzanov, Snow Meteorol Service of Kombinat "Apatit," Kirovsk, 6 pp
"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 2		"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 2
Investigates periodic process of convection in atmosphere. Distribution of temperature on earth's surface given by equation, modeling the corresponding temperature regime on surface of round island and surrounding infinite sea. To solve equation of convection, author applies method of development of un-	50T71	Equivalent temperature is purely theoretical concept obtained in consequence of hypothetical process--condensation of water vapor in the air up to zero value of pressure. Therefore, equivalent temperature is abstract quantity, and any attempt to apply it to judgment of the thermal effect of
FDB		FDB
USSR/Meteorology (Contd)	Mar 1947	USSR/Meteorology (Contd)
known functions, velocity, pressure and temperature of air particles, into infinite power series by small parameter for which the coefficient of the air's thermal expansion taken to be 0.00366. Approximate expressions of the solutions of the differential equations of this problem allow establishment of some laws of the monsoon field. Submitted by Academician L. S. Leybenzon.		interaction between air and concrete natural bodies must be regarded as irrational. Submitted by Academician L. S. Leybenzon.
FDB	50T71	FDB
		50T72

RESTRICTED		FDB Periodical Abstracts Scientific No 50		RESTRICTED	
USSR/Meteorology Weather - Clouds Mar 1947		USSR/Nuclear Physics - Isotopes Nuclear Physics - Nuclear Fission Feb 1947			
"Distribution of Color in a Cloudy Sky," V. V. Sharonov, Leningrad Order of Lenin State U, 16 pp		"Isotopes of Greatest Abundance," M. A. Levitskaya, Voronezh State University, 4 pp			
"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 2		"Comp Rend Acad Sci URSS" Vol LV, No 5			
Discusses distribution of color in sky entirely covered by thick cloudy layer of irregular brightness. Assumes that different regions of this layer emit radiant energy of one and the same spectral distribution, corresponding to usual gray color of cloudy sky, notwithstanding unequal brightness of the regions. Shows that under these conditions, dark		Often been asserted that isotopes of greatest percentile abundance possess most stable nuclei. Also appears possible to state more general rule that emphasizes role of isotopes of greatest percentile abundance as nuclei of greatest stability. Author presents and analyzes table of isotopes, and attempts to explain peculiarities noted in the isotopes of greatest abundance. Her work will be			
FDB	50T73	FDB	50T74		
USSR/Meteorology (Contd) Mar 1947		USSR/Nuclear Physics - Isotopes (Contd) Feb 1947			
regions of cloudy layer, observed from earth, seem bluish and bright regions, yellowish. In addition, saturation of color grows from zenith to horizon. Submitted by Academician L. S. Leybenzon.		published later in more detail in the Papers of Voronezh State University. Submitted by S. I. Vavilov, 22 Aug 1946.			
FDB	50T73	FDB	50T74		
USSR/Nuclear Physics - Nuclear Fission Nuclear Physics - Uranium Jan 1947		USSR/Nuclear Physics - Synchrotron Nuclear Physics - Betatron - Radiation Distribution Feb 1947			
"Fragments Formed as a Result of Fission of the Uranium Nucleus" 54 pp		"Visible Radiations in a Synchrotron," M. Rabinovich, 2 pp			
"Uspekhi Fiz Nauk" Vol XXXIII, No 1		"Uspekhi Fiz Nauk" Vol XXXIII, No 2			
Presents and explains table showing fragments produced when uranium nucleus is split. Table copied from one in "Journal of the American Chemical Society" 62,2411 (1946). Gives key to table. Gives bibliography of books used in compilation of article. Table compiled by J. Siegel.		Author states that both Ivanenko and Pomeranchuk directed their attention toward the electromagnetic radiation evidenced in the synchrotron and betatron type accelerators. Presents summary of information he obtained from publications by Ivanenko, Artsimovich, Rabinovich, L. Foldy, Schott Blewett, and Elder. Also refers to "Science News Letter" 51, 339, 31 May 1947.			
IC	50T75	IC	50T76		
USSR/Oceanology Waves, Ocean Jan 1946		USSR/Oceanology Ice Jan 1946			
"On the Study of Littoral Dynamics," V. P. Zenkovitch, 12 pp		"Biological Indicators of the Origin of Ice Floes in the Kara Sea, the Laptev, and the Straits of the Franz Jozef Land Archipelago," P. I. Usachev, 36 pp			
"Trudy Instituta Okeanol" Vol I		"Trudy Instituta Okeanol" Vol I			
Briefly outlines results of submarine observations carried out on the south coast of Crimean Peninsula (Black Sea). Describes topographic relations, and rocks and sediments of the bottom, observes and experimentally determines the dynamics of the wave action.		Investigations made of flora from upper surface of ice, from basins not connected with sea, of algae frozen in mass of ice, of flora inhabiting lower surface of ice, and of marine phytoplankton among the ice. On the basis of algae encountered, three types of ice may be distinguished among masses of drift ice, according to origin: marine ice, fresh-water ice, and ice of mixed origin.			
IC	50T77	IC	50T78		

RESTRICTED	FDB Periodical Abstracts Scientific No 50	RESTRICTED
USSR/Oceanology Marine Biology  "Diurnal Vertical Migration of Zooplankton in Polar Seas," V. G. Bogorov, 8 pp  "Trudy Instituta Okeanol" Vol I  Plankton make daily vertical migrations, sinking to depths during day and ascending to surface at night. Polar conditions provided ideal laboratory for support of theory that light is factor determining this migration. Observations during 24-hour daylight summer demonstrated that migration does not occur when light remains constant. Migration resumes during polar autumn.  LC 50T79	USSR/Oceanology Heat - Conductivity  "On the Thermal Regime of the Kuroshio," V. B. Stokman, 25 pp  "Trudy Instituta Okeanol" Vol I  Analyzes temperature observations on the section off Sion Misaki in attempt to characterize the thermal regime of the Kuroshio. Computes vertical changes of the coefficient of turbulent heat-conductivity by Fjeldstad's formula. Determines changes with time showing large yearly variation, at the 100-m depth. Calculates approximate value of advective heat-flow in the 0- to 200-m layer,  LC 50T80	
USSR/Oceanology Heat Exchange Systems  "On the Relationship Between Coefficients of Horizontal and Vertical Turbulent Heat-Exchange in the Sea," V. B. Stokman, 10 pp  "Trudy Instituta Okeanol" Vol I  Relations between coefficients of horizontal ( $K_x$ ) and the vertical ( $K_z$ ) turbulent heat exchange in the sea shown to be determinable approximately from the expression $\frac{K_x}{K_z} = \left( \frac{\partial \theta}{\partial y} / \frac{\partial \theta}{\partial z} \right)^2$ . Thus $K_x$ is on the average $10^6$ times greater than $K_z$ . Evidence produced that $K_z$ , contrary to general opinion  LC 50T81	USSR/Oceanology (Contd)  and the mean value of the horizontal temperature gradient, and qualitatively analyzes local changes of temperature at different depths of the section.  LC 50T80	
USSR/Oceanology (Contd)  must possess molecular rather than turbulent significance, whereas $K_x$ may have turbulent significance. Thus, relation between the two will be particularly high.  LC 50T81	USSR/Oceanology Currents, Ocean  "On the Dissipation of Energy in Stationary Ocean Currents," V. B. Stokman, 16 pp  "Trudy Instituta Okeanol" Vol I  Evolves equation by integral method for computing dissipation of energy in currents produced by winds and pressure gradients in homogeneous limited sea of finite depth. Computations for the "Aransgrund" lightship agree well with the theory. Includes critical analysis of computation by K. Suda of dissipation in convectional current that disputes the reliability of the computations.  LC 50T82	
USSR/Oceanology Heat - Conductivity  "Vertical Distribution of Thermal Waves in the Sea and Indirect Method for Determining the Coefficient of Turbulent Heat Conductivity," V. B. Stokman, 44 pp  "Trudy Instituta Okeanol" Vol I  Discusses errors of calculation of the turbulent heat conductivity coefficient $K_z$ by the Fourier-Schmidt method and Fjeldstad's formula. Shows that computation of $K_z$ by phase displacement amplitude relation should not be used as at present for small depth intervals, but that the most reliable value would be  LC 50T83	USSR/Oceanography Marine Research  "Coagulation of Humus Compounds of River Discharge in Sea Water," B. A. Skopintsev, State Oceanographic Inst, Lab Geochem Problems, 14 pp  "Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 1  Discusses results of laboratory investigations on the coagulation of natural water-soluble humus compounds by sea water. Experiments carried out with river and peat-bog waters. Included studies of the effect of various concentrations of humus  FDB 50T84	

RESTRICTED	FDB Periodical Abstracts Scientific No 50	RESTRICTED	
USSR/Oceanology (Contd)	Jan 1946	USSR/Oceanography (Contd)	Jan 1947
obtained by application of the formulas to the layer of greatest width. This is checked by application of method on Sargasso Sea data.		compounds and sea-water salts, effect of freezing on biologic processes, etc. Content of humus estimated by determinations of the color of sea water. Conclusions drawn on the formation of brown mud on the bottoms of the Polar basin. Submitted by Academician P. P. Shirshov.	
IC	50T83	FDB	50T84
USSR/Petroleum - Oil Wells Electricity - Conservation	Dec 1947	USSR/Petroleum Industry Electrical Equipment	Dec 1947
"Methods of Decreasing the Electric Power Consumption of Deep Well Pumps," A. A. Pogarskiy, OrgEnergoNeft, 5 pp		"Power Equipment for the Petroleum Industry," P. M. Bazhenov, Elektromekh Works of GlavVostok-EnergoNeft, 4½ pp	
"Energeticheskiy Byull" No 12		"Energeticheskiy Byull" No 12	
Tests and studies showed that it possible to obtain saving of up to 40% in use of electric power by deep well pumps at Tuymazin oil fields. Chief measures adopted: installation of lower-powered engines, proper synchronization of pumps, and proper lubrication of all movable parts to cut resistance by friction to minimum. These measures can also be used at		Discusses some specialized equipment, particularly electrical, being supplied to rapidly expanding eastern oil fields. Mentions in particular complex electromagnetic panel for drilling operations, and all switchboards and booster stations that make up the circuit. Includes several pictures of the panel, and auxiliary apparatus.	
IC	50T85	IC	50T86
USSR/Petroleum - Oil Wells (Contd)	Dec 1947	USSR/Petroleum Industry Power Plants - Performance	Dec 1947
other oil fields and thus greatly reduce consumption of electric power.		"Index of Operation of Some Large Power Stations of the Ministry of Petroleum Industries of the Eastern Regions for the Third Quarter of 1946 and 1947" ½ p	
		"Energeticheskiy Byull" No 12	
		Short table comparatively lists performance of the Ishimbay, Buguruslan, Kulsarinsk, TsES, the DES of the KazEnergoNeft Trust, Tuymaz Power System, the TETs of the Orsa and the Kuybyshev Works, and Power Train No 109.	
IC	50T85	IC	50T87
USSR/Petroleum Industry Electrical Equipment	Dec 1947	USSR/Physics Low Temperature Research Nuclear Physics - Research	Jan 1947
"Selecting Voltage for Power Utilizers at Petroleum Industries," Kh. S. Arakelov, Rostov Designing and Construction Adm KavElektromontazh Trust, 2 pp		"Organization of Soviet Physics," E. V. Shpol'skiy, 21 pp	
"Energeticheskiy Byull" No 12		"Uspekhi Fiz Nauk" Vol XXXIII, No 1	
Problem of proper selection of voltage for the equipment used at petroleum industries closely associated with problem of decreasing loss of electric power as well as decreasing amount of nonferrous metals that would be used for the circuits at petroleum industries. Author presents several factors that must be taken into account to be able to make reasonable selection of voltage to be used. IC	50T88	Gives short history of pre-Revolutionary Russian physics and Soviet physics during first days of the Revolution. Followed by long account of post-Revolutionary Soviet physics mentioning the more important Soviet physicists as well as their fields. Lists various scientists by their fields, e.g., physics of solid bodies, low temperatures, the atom and cosmic radiation, physical chemistry, etc. IC	50T89

RESTRICTED	FDB Periodical Abstracts Scientific No 50	RESTRICTED	
USSR/Physics Optics Spectroscopy	Jan 1947	USSR/Physics Crystallography Twinning	Jan 1947
"Thirty Years of Soviet Optics," T. P. Krabets, 29 $\frac{1}{2}$ pp		"N. V. Belov's Book, 'Structure of Ionic Crystals and Metallic Phases'," A. I. Kitaygorodskiy, 2 pp	
"Uspekhi Fiz Nauk" Vol XXXIII, No 1		"Uspekhi Fiz Nauk" Vol XXXIII, No 1	
Discusses various aspects of Soviet optics for past 30 years. Gives short passage on optics in pre-Revolutionary days, and during infancy of the Soviet Republic. Presents short history of development of Soviet optics industry and closely related industries. Scientists listed include those in fields of atom spectroscopy, molecular spectroscopy, diffusion of light, photochemistry, atmospheric optics, and actinometry, etc.	IC 50T90	Reviews 236-page book, with 174 illustrations, published by Academy of Sciences, USSR, 1947. Can be considered continuation of work carried out by Federov. Shows possibility of studying all crystals from one viewpoint: 1) symmetry of plane packs; 2) spaces between plane packs; 3) structural motives of AX <sub>1</sub> , AX <sub>2</sub> , etc.; 4) structures with coordination	IC 50T91
USSR/Physics Fluorescence Fluorometry	Feb 1947	USSR/Physics (Contd)	Jan 1947
"Experimental Methods of Investigating Rapid Relaxation Processes," L. A. Tumerman, 58 pp		numbers 8 and 12; 5) pseudosymmetry and twinning; and 6) new structures, based on the principle of plane packs.	
"Uspekhi Fiz Nauk" Vol XXXIII, No 2			
Generally discusses historical development of methods to study damping of illumination, theory of fluorometric measurement, fluorometry with dual modulation of light impulses, stroboscopic fluorometry, fluorometry with modulation of receiver sensitivity, "phase" fluorometry, some of the fundamental results obtained through fluorometric work, and Kerr's and Faraday's electrooptic effects.	IC 50T92		50T91
USSR/Physics Molecular Structures Academy of Sciences	Feb 1947	USSR/Physics Ferromagnetism Anisotropy	Feb 1947
"M. V. Vol'kenshteyn's Book, 'Structure of the Molecule'," A. I. Kitaygorodskiy, 1 p		"Works of Soviet Scientists in the Field of Ferromagnetism," Ye. I. Kondorskiy, 22 pp	
"Uspekhi Fiz Nauk" Vol XXXIII, No 2		"Uspekhi Fiz Nauk" Vol XXXIII, No 2	
Vol'kenshteyn intended to interest student as well as physicist in structure of the molecule. In spite of shortcomings and some rather obvious mistakes pointed out by reviewer, book is noteworthy contribution to Soviet science. Published by Academy of Sciences as "Scientific Research Journal, Monograph Series," 1947, with 270 pages, 133 illustrations, and 49 photographic plates.	IC 50T93	Gives historical account of developments and scientists in following fields: ferromagnetic theory, magnetic anisotropy, magnetic structure of ferromagnets, theory of processes of magnetization in weak and average fields, theory of hysteresis, obtaining magnetic materials, and magnetic flaw detection. Also lists various institutions such as	IC 50T94
USSR/Physics - Development	Mar 1947	USSR/Physics (Contd)	Feb 1947
"Development of Theoretical Physics in the Soviet Union," D. I. Blokhintsev, 8 $\frac{1}{2}$ pp		NIIF MGU and VIAM, and mentions some of scientists associated with these institutions.	
"Uspekhi Fiz Nauk" Vol XXXIII, No 3			
Intends to show that Soviet scientists in field of theoretical physics advanced to state where they are able to proceed unaided along path of success. Soviet theoretical physics has attained position of leadership among all nations. Briefly mentions some of more outstanding Soviet theoretical physicists and their work.	IC 50T95		50T94

RESTRICTED		FDB Periodical Abstracts Scientific No 50		RESTRICTED			
USSR/Physics Relativity Semiconductors		Mar 1947		USSR/Physics Wave Analysis Oscillations		Mar 1947	
"Thirty Years of Soviet Theoretical Physics," Ya. I. Frenkel, 23 pp				"Some Studies in the Field of Nonlinear Oscillations Conducted in the Soviet Union Since 1935," N. D. Papaleksi (Deceased), A. A. Andronov, G. S. Gorelik, S. M. Rytov, 17½ pp			
"Uspekhi Fiz Nauk" Vol XXXIII, No 3				"Uspekhi Fiz Nauk" Vol XXXIII, No 3			
Gives historical account of development of Soviet theoretical physics for the past thirty years. Discusses scientists who contributed to achievements in following fields: theory of relativity and quantum mechanics, quantum theory of elementary particles and atomic nuclei, quantum theory of metallic bodies, theory of electronic semiconductors and insulators,		IC		Discusses two categories of nonlinear systems: 1) those weakly nonlinear, and 2) those strongly nonlinear. State that information presented is nothing new or startling, but merely short discussion of some of the improvements upon ideas in		IC	
50T96				50T97			
USSR/Physics (Contd)		Mar 1947		USSR/Physics (Contd)		Mar 1947	
theory of the liquid state at high and low temperatures, mechanical properties of solid bodies, general principles for thermodynamics and statistics, and physical mathematics.				existence in 1935. Refer to article by Mandel'shtam, Papaleksi, Andronov, Khaykin and Vitt, published in 1936, that contained basic data for improvements they discuss.			
IC		50T96		IC		50T97	
USSR/Physics Luminescence Light - Polarization		Feb 1947		USSR/Physics Radiation, Black Body Mathematics, Applied		Mar 1947	
"Nature of Elementary Emitters and the Polarization of Photoluminescence," P. P. Feofilov, Lab Luminescence, State Opt Inst, 4 pp				"Solution of Stefan's Problem," L. I. Rubinshteyn, 17 pp			
"Comp Rend Acad Sci URSS" Vol LV, No 5				"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 1			
Vavilov has shown that the kind of multipolarity of elementary absorbing and emitting systems in the case of complicated luminescent molecules can be established by studying absorption and emission as function of the direction of the exciting light vector, and by		FDB		Deals with the system of integral differential equations equivalent to Stefan's problem in the case of linear conductor of finite length. Proves the unity of the solution. Principle lies in the nonlinear transformation of the coordinates changing		FDB	
50T98				50T99			
USSR/Physics (Contd)		Feb 1947		USSR/Physics (Contd)		Mar 1947	
observation. He has computed polarization diagrams for the four possible combinations of electric dipoles and quadrupoles and made it clear that the study of polarization diagrams permits definite decisions on the kind of multipolarity of elementary emitters. Feofilov extends Vavilov's considerations to the case of a magnetic dipole. Submitted by S. I. Vavilov, 19 Oct 1946.				the region with unknown variable boundaries into the interval. Submitted by Academician L. S. Leybenzon.			
FDB		50T98		FDB		50T99	

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FDB Periodical Abstracts Scientific No 50

RESTRICTED

USSR/Radio - Development  
Radio Waves - Propagation

Mar 1947

"Thirty Years of Soviet Radio Physics," B. A. Vvedenskiy, M. I. Ponomarev, 17 pp

"Uspekhi Fiz Nauk" Vol XXXIII, No 3

Gives historical account of development of radio techniques, particularly radio physics, in Soviet Union during past 30 years. Briefly discusses scientists who have been active in following fields: oscillations with lumped constants, with distributed constants, electromagnetic radiations, and propagation of radio waves. Note that these scientists have been working to meet Stalin's demands that "Soviet

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USSR/Radio - Development (Contd)

Mar 1947

technology should not only attain, but surpass that of other nations."

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List of Abbreviations  
used in FDB Periodical Abstracts

ID	Intelligence Division Library
AMC	Air Documents Division, Air Materiel Command
ST	Reference Division, State Department
BM	Bureau of Mines, Dept of Interior
BS	National Bureau of Standards
SI	Smithsonian Institution
LC	Library of Congress
FDB	Foreign Documents Branch, CIA
COM	Department of Commerce
AF	A-2 Library, USAF

USSR/Radio Waves  
Radio Interference

Mar 1947

"Interference of Radio Waves," V. V. Migulin, 76 pp

"Uspekhi Fiz Nauk" Vol XXXIII, No 3

Author condenses his doctor's thesis presented in Mar 1945 at the Physics Institute, Academy of Sciences, USSR. Also presents several differences. Defines term "interference of radio waves" and gives methods to determine this interference. Discusses various types of radio interference: a) in the case of only one source of radiation, b) in the case of several sources of radiation, c) in the case of fluctuating radiation frequency, d) of

LC

50T101

USSR/Radio Waves (Contd)

Mar 1947

modulated fluctuations, and e) interference method to measure speed of propagation of radio waves along earth's surface. Gives comprehensive list of books and articles on same subject.

LC

50T101

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used in FDB Periodical Abstracts

ID	Intelligence Division Library
AMC	Air Documents Division, Air Materiel Command
ST	Reference Division, State Department
BM	Bureau of Mines, Dept of Interior
BS	National Bureau of Standards
SI	Smithsonian Institution
LC	Library of Congress
FDB	Foreign Documents Branch, CIA
COM	Department of Commerce
AF	A-2 Library, USAF